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COLMAN'S RURAL WORLD.

DEVOTED TO AGRICULTURE

HORTICULTURE

HORSES

CATTLE

SHEEP

SWINE

ETC.

Established 1848.

COLMAN'S RURAL WORLD.

ROBERT J. COLMAN, EDITOR.

PUBLISHED EVERY WEDNESDAY, IN CHEMICAL BUILDING, CORNER OF EIGHTH AND OLIVE STREETS, ST. LOUIS, MO., AT ONE DOLLAR PER YEAR. EASTERN OFFICE, CHALMER D. COLMAN, 555 TEMPLE COURT, NEW YORK CITY. ADVERTISERS WILL FIND THE RURAL WORLD THE BEST ADVERTISING MEDIUM OF ITS CLASS IN THE UNITED STATES. ADDRESS ALL LETTERS TO COLMAN'S RURAL WORLD, CHEMICAL BUILDING, ST. LOUIS, MO.

Subscribers should bear in mind that the RURAL WORLD is stopped when the time paid for has expired. To keep up a constantly increasing subscription list we allow old subscribers to send a NEW name with their own for one dollar, and to add at any time NEW names at fifty cents each—but renewals without new names are at one dollar a year. We also allow subscribers to club with the twice-a-week "Republic" or the twice-a-week "Globe-Democrat" at \$1.50 a year—thus securing two one-dollar papers at that very low price. We appreciate the kind efforts of our patrons in all parts of the union in speaking good words in behalf of the RURAL WORLD, and it is to these efforts we attribute our constantly increasing circulation.

THE CHEMISTRY OF THE FARM.

The science of chemistry is, to the farmer, one of the most mysterious of all branches of human knowledge. In fact, to the average man of intelligence who keeps in touch with the world's work, chemistry is an unknown land, and unless his business requires it, he knows as much about this science as he does about the ancient Vedas. Without requiring an exact or scholarly training in chemistry it would seem from the nature of the farmer's occupation as a grower of plants and animals, that a certain amount of knowledge of the laws of the elements of plant and animal growth would be extremely valuable.

A number of books on this subject have been published. Some of these are too abstruse for the layman. The authors have assumed too large an acquaintance with the science on the part of prospective readers. Some avoid technical terms and symbols and aim to teach the practical farmer, but a college education is generally a condition precedent to a comprehension of their contents. A volume of the former class comes to our desk from a London publishing house. It is written by a high authority and contains much of interest to a student of chemistry who has a greater degree of familiarity with the technicalities of the science, than is possessed by the average man. It states in its preface that the book was written primarily for the use of students and teachers in agricultural schools and colleges.

On reviewing this book we are impressed with the need for a primary text book on this science which may be comprehended by the average reader.

Chemistry is closely related to all the phenomena observed in farm life. It is the "how" of most of the mysteries, so far as the mind has been able to solve them. Custom tells the farmer to plow his land as a preparation for the seed. Chemistry tells him that in so doing the stubble decays, making humus, and the porous soil lets in the sun and air; thus is liberated from the inert mineral matter of the soil the available elements used as food by the young plants; that all plants take up their food in a soluble or watery condition and by putting the soil in "good tilth" is only meant that the greatest possible amount of dissolved plant food is placed at the disposal of the little rootlets groping around in the dark mould for nourishment.

Every farmer knows that putting manure on the soil increases the yield. How many know just why it does this and how? Chemistry tells him that for plants here is a condensed balanced ration of high digestibility. That is, in comparatively small bulk there is a large store of plant food. If the farmer knew more of the "how" and "why" of fertilizers he would not be much less apt to waste or ignore the supply heaped up in his barnyard.

The seed is dropped into the soil and the man who can only see dollars knows that it may sprout and make a crop. Chemistry teaches all the subtle alchemy of nature; how the sun and soil and rain get together down below in that wondrous laboratory and beginning with the germs of life left over by the parent, evolve, by purely chemical action, cell upon cell, until the field of golden grain waves a welcome to the harvesters. All this sort of thing is true in the world of animal physiology and in relation to feed for farm stock, and volumes would be required to enumerate all the interesting things contained in the science of chemistry which bear directly upon raising crops and feeding animals.

It may be maintained that a field will grow no better crops nor the market present any more pleasing aspect, on account of a knowledge "how" the crops grow or "why" the manure effects its increase. We do not agree with this position. We believe that other things being equal, the man who better understands the fundamental principles of farm operations will better succeed in a financial way. Without an intimate knowledge

of the phenomena of plant growth, a farmer is working more or less in the dark. Farming being an art—which means adaptiveness—and not a science—which implies exactness—he who is best equipped with a knowledge of the details of his profession or business can best adapt this knowledge to the changing conditions which soils and kaleidoscopic seasons present.

There is another reason why a study of the chemistry of the farm pays. It opens a man's eyes to the beauties of the world. It broadens his view of the plan of things. And while man—poor atom that he is—can never hope to solve the problems of the infinite, he can, by enlarging his vision, not only develop character, but he can escape from that bondage of toil which holds the one who merely works to live. He can make his labor enjoyable. He can make his life worth living, in spite of financial failure.

THE MISSOURI BOTANICAL GARDEN

Most of our readers have heard of "Shaw's Garden," and a majority of those who keep in touch with current history are acquainted with the main facts of its establishment and the provisions for its perpetuation. While this blooming, perfumed oasis is the feature that has "made St. Louis famous" and it is now known as the "Missouri Botanical Garden," the scope of work of this institution and its influence as a collector and conservator of botanical science is not restricted to city, state or national lines. It is unique. It stands in a class by itself. Just as its herbarium, its arboretum, its fruit and floral sections are enriched by tributes levied on the flora from every part of the globe, so does it make returns to those distant domains in digested data, in the ripened fruit of experience and exact research, and its fame has gone forth to the uttermost parts of the earth where other specialists are delving in similar fields.

While every institution must have a local habitation and a name, and while St. Louis is proud to associate her name with so worthy and notable an enterprise, it should be remembered that "Shaw's Garden" is too great and too far reaching to be considered merely as a local ornament. It is more than a beautiful park with greenhouses and landscape effects. It is a school of botanical and horticultural science, a museum and library preserving specimens and literature related subjects, an experiment station for original investigation, a laboratory for the study of plant pathology, a living, glowing exemplification of the highest art of the landscape architect, and finally, it is a chromatic symphony of reds and greens and pinks and yellows and blues which stands as a masterpiece of the collaboration of its founder and those to whom he left its trust.

Following closely the time when the annual banquet is held in honor of Henry Shaw, at which meet the florists, gardeners, fruit growers and others with associated interests, it is fit and proper to call attention to the magnificence and far-reaching beneficence of the man who was a philanthropist—in the truest sense and in the most unselfish spirit.

The portrait and a brief sketch of Henry Shaw's life appeared on this page in the issue of November 25.

Ambitious young men are admitted to the Shaw school of botany, and the garden school furnishes thorough and practical instruction in the various branches of floriculture, market gardening, fruit culture, etc.

It is eminently fitting that in the city where Henry Shaw lived his life and built this enduring monument, there should be promised, in connection with the Universal Exposition commemorating the admission of this very territory of which the great commonwealth of Missouri is a part, the grandest and most complete Horticultural exhibit ever gathered together for the edification and instruction of mankind.

It is impossible to speak of this famous institution without referring to the Director, Dr. William Trelease. It would be hard to conceive of the three requisites of a well-balanced character, the fourth dimension of a level-headed business sagacity whereby is wisely directed the varied departmental machinery of the institution.

WHY DO CORN LEAVES CURL IN DRY WEATHER?

We should like to know how many of the younger generation of farmers could even guess what causes blades of corn to curl or roll in times of great heat or drought? Of course the old farmers either know they are satisfied to say it's the "hot dry weather," or else they are as anxious as the youngsters to learn the reason for such common everyday affairs.

For those who are not satisfied to merely say "it is the dry weather," but desire to know the inquisitive class of beings who go poking their noses into dark corners with that insatiable curiosity to find out about "things," we will say that all plants breathe as well as perspire. All green plants (those having chlorophyll cells) breathe through little mouths on the under side of the leaf. These little

mouths, which are also sweat pores, are called "stomata." The difference in plant and animal breathing is that animals take oxygen out of the air and use it in purifying the blood and in mixing it with the carbon which gets in fatty or starchy food, and this mixture produces animal heat. This process is identical with that of a stick of wood burning in a stove. The wood is all carbon except the ashes and when the stove draft is opened air rushes in and the oxygen part of the air unites with the carbon at a certain temperature and heat it the result. As the animal takes oxygen from the air it exhales or breathes out what is called carbon dioxide, or carbonic acid gas. This is fatal to animals, but plants live on it. Every green plant takes this carbon dioxide through the stomata of its leaves and appropriates the carbon from it. This carbon goes to make starch fibre and fat in the plant. Thus the circle is complete and our bright young readers will already say, "Why, animals and plants depend on each other for breath" and so they do.

Now the plant breathes out oxygen and moisture through its pores and in wet seasons or during a rain the stomata open wide and the evaporation from these tiny under-side pores is very great. This is because there is a surplus of moisture in the soil and air and nature plans that what the plant does not need is passed off in this way.

When the supply of moisture runs low and the ground gets baked and the air is dry, Nature's automatic device operates the other way and the little mouths close up so that evaporation ceases and all the moisture the roots can send up from the soil is used by the plant. And now you see "just how" the leaf rolls together, always with the lower surface inside. The closing of the millions of stomata or pores causes the lower surface to contract or draw together. As the under surface is now shorter than the upper it pulls the edges of the leaf together and it curls up lengthwise and rolls together sideways.

This also has a further advantage of presenting less surface to the sun's rays.

Of course, corn does not grow much during such drought periods, but it will quickly rally and unroll its leaves when rain comes.

We have emphasized the fact that "green" plants breathe in and appropriate carbonic acid gas. Mushrooms and other fungus plants, and, in fact, all plants having no chlorophyll or "greenish" cells, breathe very much the same as animals. And this suggests another question which we put to our inquisitive young readers (of all ages) for consideration until next week—"Why do mushrooms have gills?"

THE MAGNITUDE OF THE LIVESTOCK INDUSTRY.

The relative importance of several agricultural interests may be gathered from the following stirring words by Secretary Wilson, in his address made at the recent Live Stock Exposition at Chicago:

The meeting you have here now is the most magnificent expression of the world's progressive history. What a long time we waited for all this. Forty years ago Congress endowed agricultural stations and later experimental stations for the purpose of helping the farmer toward the establishment of the science of breeding and feeding, among other things, and what an illustration we have to-day with regard to the latter. Our people are beginning to learn something about feeding. Our 2,500,000,000 bushels of corn, grown this year, is to go to market, the greater part of it, through our domestic animals.

Our people are learning how to feed economically and prevent waste. There is a great difference between shoveling grain into a snow bank and feeding stock a well-balanced ration in a stable or well-protected shed.

A man cares for a crop all summer, works hard in the summer, gets it piled up; he has so much corn, he has so much oats, and he has got hay and straw and all that. Well, the question comes up then, does that man know how to feed the stuff so as to make the most money out of it? Generally he does not know.

As a general proposition a very great waste occurs all over the United States in the feeding of our nutrients to our domestic animals, but there is hope held out by the presence of young gentlemen from colleges that we are to have scholars in the land along those lines and that we are getting them rapidly. We have thousands of men studying in our agricultural colleges the sciences that make for greater profit on the farm.

The United States is doing more for research along these lines for the American farmers than all the other countries in the world. The Department of Agriculture at Washington has more money at its disposal for research along these lines than Harvard and Yale and Columbia and this big Chicago University and Leland Stanford all put together.

I want to call your attention a moment to the magnitude of the live-stock interests. Our animal production a year amount to \$900,000,000 in the United States—\$900,000,000 annually is the product of all our domestic animals in the United States. The little amount to \$472,000,000. The little speckled hen of the barnyard cackles out \$181,000,000 worth every year. We sent abroad last year our live animals and animal products \$244,000,000 in round numbers; the year before it was

\$233,000,000—\$250,000,000 worth of things going from the United States. Our cattle exports, live cattle last year, amounted to \$252,000,000; our horses to \$11,000,000; our sheep to \$2,000,000. What we ate at home—we have the greatest market in the world here—and what we sent abroad added together makes that \$300,000,000. Those are the interests, gentlemen, that we represent. You can take all the cotton and all the wheat and all the oats and put them all together, and they all don't equal the livestock industry in its products.

THE CASCADE GARDENS.

To vary the illustration for this page, we show our readers this week an engraving of the central feature of what is called the "Main Picture" of the whole Louisiana Purchase Exposition. The Cascade Gardens are to the coming Exposition what the Court of Honor was to the tout ensemble of the Columbian Exposition in 1893. It is the focal point, the central and most impressive figure in the whole architectural and landscape picture. Where the Court of Honor was noble, dignified and unchanging, the Gardens will be just as

\$40 per month with house rent, etc., free. It is the all purpose hand who is most in demand, the man who can do any job about the farm.

For the past 20 years I have gone a mile and a half every winter to stick and dress four to six hogs for a friend, and the next day I go back, cut up the hogs and pack away the meat. He is a farmer, he has three sons from 24 to 38 years of age and not one of them could kill, skin, scald, dress or cut up a hog, yet I get \$2 a year to do it.

Every boy he has, has watched me do the work all these years and they have all helped me do it, yet not one will attempt to tempt it by himself.

My oldest boy could do any such work by the time he was 17, when he was 19 he was a No. 1 grain stacker and so on through the list of farm work; the other boys learning in their turn to do most things of this kind.

Such men are invaluable to the man who has to depend on hired help and they can always command good wages. Let me urge all farmers to teach the boys on the farm every detail of farm work; do not parcel out the jobs and let Sam work the team, Joe do the fencing,

wages when it shall have been earned, is preposterous.

The telegraph operator who works from 10 to 15 hours every day, and seven days in the week, who can lord it over the passengers if he wants to, and is in turn lorded over by his superior officers, and gets enough salary to pay his board or living expenses. Or the lawyer who hangs out his shingle and waits from one to five years for enough practice to keep the wolf from the door, having to be a notary public after business hours, or teach in a night school after business hours, or teach in a high school in a business college (?) that he may keep up the dignity and respectability his position in society demands of him. Or the teacher who has to put in the time between school and institute in selling the "Lives of Illustrious men" or patent medicines in order that they may live up to the proper scale of dignity and respectability of a college

NEWS AND COMMENT.

The venerable Archbishop of Canterbury, the church primate of all England, died in London December 22d. He was a successful man of much force of character and many of the attributes of true greatness.

The Florida orange industry seems rather precarious. When the temperature went down to 22 degrees on the night of the 27th inst., the growers saved their crops by building large bonfires, and many used hundreds of small sheet-iron stoves.

A man in Detroit claims to be the son of Aaron Burr, who, he says, fell in love with a squaw of Negro and Indian blood and that the claimant, who is 108 years old, is their only son. After living in honorable obscurity for 108 years, any one claiming such a combination ancestry must be in his second childhood.

The Farmers' Institute car having proved so successful, the Frisco road proposes to equip a car for a series of meetings through its territory. Great benefit will result from this phase of educational work in the awakening of a new interest among farmers for the best and latest methods and machinery in farm operations.

A large number of the souvenir gold dollars issued by the U. S. government in commemoration of the Louisiana Purchase Centennial have been sold at the minimum price of \$2.00 each. As but 250,000 of these coins will be issued, and they are not uniform, one-half bearing the head of McKinley and one-half that of Jefferson. It is likely that these little souvenirs will command a high premium before the opening of the St. Louis Fair, May 1st, 1904.

As the ravages of smallpox have been abated during the last fifty years by the discovery of vaccination, there seems a probability of a halt of the great white plague—consumption—in its death march among the races of man to-day. The State Veterinarian of Pennsylvania declares that he has established the efficacy of vaccinating cattle against bovine tuberculosis, and if subsequent tests prove this statement, there seems little doubt that similar methods could be applied in cases of human tuberculosis.

A convention composed of 1,000 delegates will meet at Oklahoma City, Ok., January 6th, for the purpose of endorsing the passage of the Nelson bill, recently introduced in the Senate, to unite Oklahoma and Indian Territory into one state. The outlook for single statehood seems somewhat uncertain. The conflict of opinion by citizens of Indian Territory is likely to defeat its immediate admission as a state. Had the sentiment been unanimous, or nearly so, the very weight of public opinion would have won the day. However, there is still a prospect of a satisfactory adjustment of differences.

Notwithstanding the reports of the cattle car famine and the "great fortunes" being lost daily by cattlemen compelled to keep fat steers which should be bowing along the trunk line to the shambles, the depressed condition of cattle markets still continues, owing to extensive shipments of all classes of stuff. Stockers and feeders are quoted from \$2.00 to \$4.25 and beef steers from \$4.65 to \$6.25 according to grade. These prices are much lower than those of two months ago, while the relative supply of cattle is less. If stockmen know how many cattle there are in the country they would have some basis for sound judgment whether to ship or hold. An annual live stock census is imperative. As it is now, nobody can foresee the precipice of a possible cattle shortage until we fall into it.

No doubt President Roosevelt is glad to be rid of the position as arbitrator in the case of Venezuela and Great Britain, Germany and Italy. The arbitration goes to the Hague tribunal, which is a sort of international court for the trial of all cases between nations. Back of all other courts in the world is force, called the "strong arm of the law," represented in this country by constable, sheriff or United States Marshal. This executive branch of government enforces the decisions of courts. When folks get so good as not to need a sheriff they will need no courts. General Sherman said "War is hell," and the idea of universal peace and arbitration is very pleasing, but we would like to inquire who represents the executive department of the Hague tribunal? Suppose Venezuela, for instance, declined to submit to its decision. The question is open.

The Post Check Counter does away with the cumbersome money order machinery. A man can make out his order wherever he likes and it is payable only to the person designated. It saves time, expense and loss and is at once the most convenient, practical and sensible invention the wit of man has yet devised. One would think that its simplicity and safety would commend it at once to the postal authorities, but men in official position become so attached to old methods that they insensibly cling to them and persistently fight all innovations. It is precisely this class of men that the Post Check system has had to fight, but the members of Congress ought to be above such party and foolish considerations. They ought to regard the measure as one fraught with inestimable benefit to the business interests of the country. We trust that Congress will look at this from the high plane of statesmanship and not be influenced by the objections of interested parties.

did and inspiring, with the addition of a biograph—a moving picture—the fall of water giving a kaleidoscopic touch to the perfect artistry of construction. Neither words nor an excellent half-tone portray the ineffable beauty of this magnificent composition, formed by the harmonious union of architect, engineer, landscape gardener and sculptor.

The architect has contributed Festival Hall, the ornate structure in the center

The Dairy

SILOS AND SILAGE.

(Paper read at the 13th annual meeting of the Missouri State Dairymen's Association, November 11-12, at Columbia, Mo.)

It seems to me that I am out of place to try to discuss the subject of silos and ensilage before this convention, but as I have been placed on the program, I will try to give my experience with the silo as best I can. I have had my silo built for three years and it has given me the best of satisfaction, but if you could come to Clover Hill Dairy I could show you better than I can tell you, as I like the Missouri idea of having to be shown.

Three years ago I decided to make dairying my business. I had a herd of thirty-two grade Jersey cows of good quality. I concluded that the next most important thing was proper feed for my cows. After getting all the information that I could out of "Howard's Dairymen" and COLMAN'S RURAL WORLD, called on Mr. Brooks of Cavendish, Mo., and Uncle John Patterson of Kirksville, Mo., and got their experience with ensilage as feed. I decided to build a silo. I built my first silo in the fall of 1900. I built it round, 16 feet in diameter, and thirty-four feet high, four feet of this was under ground. The silo proper is made of 2x6 pine, 14 and 16 feet long. It is hoisted with 15 iron hoops made of 1/2 inch rods. I then filled this silo with corn and with this amount of silage I fed thirty-two cows from the 15th of November till the 27th of April. I also fed some bran and a very little corn and allowed the cows to run to sorgum cane during the day. My cows milked well all winter and in the spring were in good condition. As evidence of the value of my method of dairying, I wish to state that my butter brought one cent more per pound on the New York market than the top price. The dry cows I wanted to put off. I sold for \$35 per hundred, without extra feed.

In the fall of 1901, I refilled my silo with corn, this time it was mostly fodder and this enabled me to keep sixty-five head of cattle of all kinds through the winter, thirty-four of them cows, without buying any rough feed. I feed a little corn meal to the best milkers. Bran was too expensive to give sufficient profit. While my neighbors were paying \$12 and \$14 for hay per ton to keep their stock through the winter, I fed silage raised on my farm; this induced me to build another silo, so that this fall I built silo number two, after Mr. Cobb's plan, of Monmouth, Ill.

It is twenty feet in diameter and thirty-four feet high, four feet of this is under ground, made of rock. On the top of the foundation, the staves of 2x4 pine, 14 and 16 feet long, nailed together with 40-penny spikes. This silo is filled with corn and sorgum, about equal parts. We are feeding the silage from this silo now and it is giving good satisfaction. I am sure that silage is the best winter feed that I ever fed in Missouri, either for milch cows or for young stock, and hogs will eat it readily and it makes a good change for them.

You can build a silo as cheaply as any other building to keep feed in if you consider the cost of the feed.

Show there are three or four farmers in my neighborhood who would each build a silo, and others buy an ensilage cutter in partnership, all would have the use of one machine and by exchanging work, letting each man have his place in the cutter so that he would work to the best advantage, much time would be gained and trouble prevented. I filled silo No. 2 at the rate of eight feet per day with a thirteen-inch cutter. I used a Deering corn binder to cut the corn, and have the corn hauled in on low wheeled wagons, and each man loads his own wagon. It cost me but 35 cents per ton to put up my ensilage this year and it was hauled from 40 rods to one-half mile. I like ensilage because it is handy to feed and stock will eat ninety per cent of it if it is properly put up. While my neighbors are digging mouldy corn-fodder out of the snow drift, I feed green feed in the dry.

Where corn is made into ensilage it makes more manure and of a better quality. My wheat made ten bushels more per acre this year on the ground where I had spread manure from the stable where ensilage and bran was fed than it did where manure was scraped up from the yard where fodder and sorgum was fed, and on the same quality of ground.

Notwithstanding the criticisms made against the use of the silo in this section of our nation, I have found that it is profitable, and has even done more for me than I anticipated. When a Missouri cow will produce butter that sells for 33 cents per pound, why not her silage?

DISCUSSION.—Mr. Patterson: Silos and ensilages are necessary things for making the most profit in dairying and I think they are just as profitable for general stock raising; it makes a good and cheap feed for young stock of any sort, and is no costlier than other feed. Putting the cow peats in the silo with corn is easier than curling the peats and I think it makes a better balanced ration in this way than any other. I could not field cure cow peats this year without losing most of them. I bought a new ensilage cutter and it was delayed in transportation and consequently when the frost came in September I lost ten acres of cow peats. We always have good results from feeding cow peats mixed with corn and other feeds. The silo is the preferable way of feeding dairy cows and the sooner we get to using it the more profit we can make.

The way to fill the silo depends upon what machinery you have. Mr. Rogers spoke of using a corn harvester. I had one and it took the best man I had and three of my best horses and cost me more than to cut it by hand, and lay it down in small piles. We found this a much cheaper way than to harvest with the corn harvester, and I sold my harvester.

Mr. —: Do you have trouble in elevating your corn with the blower?

Mr. Patterson: Not when we have enough power. We elevate it thirty feet.

Difficult Digestion

That is dyspepsia. It makes life miserable.

Its sufferers eat not because they want to, but simply because they must.

They know they are irritable and fretful; but they cannot be otherwise.

They complain of a bad taste in the mouth, a tenderness at the pit of the stomach, an uneasy feeling of puffy fulness, headache, heartburn and what not.

The official remedy, proved by permanent cures of thousands of severe cases, is

Hood's Sarsaparilla

HOOD'S PILLS are the best cathartics.

DE LAVAL CREAM SEPARATORS

For twenty years the World's Standard
Seed for free catalogue.
The De Laval Separator Co., 74 Cortland St., N.Y.

On our old machine we used an eight horse power engine. That did not give enough power, however, to keep it going on a large machine, but with a twelve horse power we had no trouble.

We keep as good a man as we can get to stay in the silo and he has a six-line pitch fork and takes what falls in the center and places it all around on the sides, and the more he tramps the better, so we urge him to tramp and keep it higher on the sides than in the center, and it will keep an energetic man busy to keep the sides even with the middle.

Mr. Erwin: I feel like there was a statement made by my friend across the way that ought not to go unchallenged and that is in regard to the value of sorgum. It depends entirely on what you want to grow after you have raised a crop of sorgum. If you want the ground firm so that you can raise a crop of grass and your land is a little inclined to wash and be carried away by heavy rains, there is no crop, in my humble judgment, that is superior to sorgum. It firms the ground just right for the grass—not the clovers, but blue grass and timothy and that class of grasses. It shapes the ground so that weeds are driven from it and the ground is left in better condition for putting on a grass crop; and as to sorgum's taking away the fertilizing elements of the soil, I have very grave doubts. I think if we investigate the matter we will find that crops like corn and sorgum that are largely carbonaceous and must derive a great deal of their value from the sunlight, that they are among the least exhaustive of all the crops that we raise; whereas the soil is not carried away by the rainfall. The trouble is that we plant on the hill sides where the land is easily washed and the rainfall carries away our fertility and not the crop that we raise on it; hence, I think sorgum, if your land is disposed to wash, is one of the best crops that you can raise, and it is a crop that comes in at that season of the year when we are most likely to have a drought, and we can keep up the flow of the milk with sorgum as with no other crop. It seems to me more valuable than any other grain crop, as we have it at the season of the year when there is a drought, and it is a drought resisting plant and seems to me to be superior to cowpeas. Last year I had cow peas on the south side of my field where there is more water; they suffered in the drought, while the sorgum planted on the north side, where there is less water, did not suffer but remained green and furnished green feed for my cows during the dry part of the season.

Mr. Burns: Plant cow peas with the care that do not plant too thick.

I think it is doubtful whether sorgum takes the fertility out of the soil more than other crops and if you plant cowpeas with it you are just that much better off.

Mr. Rogers: If you have sorgum on a ridge you will have green succulent feed to feed to your cattle, beginning the first of August or last of July and it may be kept until the hard freezing weather comes on, and you cannot have that in corn fodder.

Mr. England: Is it not dangerous to turn cattle into sorgum?

Prof. Waters: Yes.

Mr. Burns: I agree with Prof. Waters that corn fodder is better than sorgum for the silo but the corn fodder will not take the place of sorgum to help out the pasture in fact I feed sorgum as long as it is not freezing weather. As long as the sorgum is not frozen to ice it makes a juicy feed the same as silage.

Mr. Miller: The best explanation I ever heard in regard to sorgum and corn I got from Prof. Waters. He said farmers have got to raise corn in order to get the ears. Why not take ears and fodder from the corn and leave the sorgum alone. Cut up every bit of the corn. Some people have silos and some have not. Stack your corn fodder like hay if you have no silo. I think that is as good advice as can be given.

Mr. Erwin: The following score card contains in condensed form the description of a typical dairy cow:

SCALE OF POINTS.
GENERAL APPEARANCE.

Form, wedge-shaped viewed from front, side and above..... 10

Face, fine hair, soft skin of medium thickness, and fine, clean bone..... 5

Temperament, sanguine, nervous..... 5

20

HEAD.

Muzzle, clean cut, mouth large, nostrils wide and open..... 1

Face, thin, long, slightly dished; expression contented..... 1

Eyes, full, mild, bright and clear..... 1

Forehead, broad, full and high..... 1

Mane, medium size, yellow inside, fine texture..... 1

5

FOREQUARTER.

Neck, thin, medium length, throat clean, dewlap small..... 3

Withers, lean, sharp..... 3

Shoulders, oblique, lean..... 3

Chest, deep and wide..... 3

Legs, straight, short, clean boned, cannon fine..... 1

25

BODY.

Girth, large..... 4

Ribs, well sprung, long, broad, far apart..... 4

Back, high and lean..... 4

Vertebrae, large, spaces wide and open..... 2

Loin, broad and strong..... 2

Abdomen, large and deep showing great capacity..... 1

Flank, deep, velvety and thin..... 1

Navel, large..... 1

27

HINDQUARTER.

Hips, wide apart, level with back..... 3

Rump, long, high and wide; pelvis arched..... 3

Pin Bones, high, wide apart..... 4

Thigh, thin, incurving, well muscled..... 4

Fore Udder, extending well forward, full, not fleshy, quarter even..... 6

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Horticulture

HORTICULTURAL TALK.

GRAPE SUPPORTS.—Among the various methods advised for supporting grape vines, there is nothing better or easier than the old style of a stake for each vine, for the inexperienced grower. The trouble with a trellis is that most growers are too greedy. They think they must cover a trellis of three or four wires completely with bearing wood. The result is that the vines soon exhaust themselves to such an extent that the fruit is anything but first class, bunches being small, loose, poorly ripened and insipid. I know of several such vineyards that were entirely killed by the dry summer of 1901, they having been weakened to such an extent that they could not stand the pressure. A severe winter would have the same result on such vines. The trellis system has some advantages, to be sure, for the man who knows how and is willing to prune the vines properly. If a trellis is propped up right at the beginning, there is usually not as much repairing to be done afterward as there is to a vineyard of stakes; and then it gives the advantage of room for tying up the young vines for the next year's fruiting. Some claim that on a trellis the vines can be spread out more, and in thus getting more sunshine and a better circulation of air, are not so liable to rot. But this I do not find true. In fact, I have noticed just the reverse. Vines neatly tied up to a stake often form a sort of roof of leaves, protecting the fruit from light showers and dew.

If a vineyard is set with good, lasting stakes, such as osage, black locust, red cedar, catalpa or mulberry, and they are put in at a depth so they will not be heaved out by frost, there will be no repairing necessary for a good many years. A vine six or seven feet long will give the root of the average vine plenty to do in maturing the crop to perfection. Then, another great advantage in a staked vineyard, is the saving of labor, by being able to cultivate both ways.

A young vineyard with stakes may be made very profitable by planting between, something like early cabbage, or peppers, that make an upright growth without much spread, in a way that there is a space of four feet between all plants and vines. To be able to do this the vines should be planted 8 by 8 or 12 feet apart. The vegetables planted between in checks can be cheaply cultivated, and will make the vineyard yield big returns, and at the same time the tillage will most likely be better than it would in a trellised vineyard where the use of a hoe will be necessary.

In pruning it is not best to leave the heaviest young cane for fruiting, as a smaller one will give better results. This is particularly true of Moore's Early, in which case one should be careful to always leave a small vine not much larger than a lead pencil and discard the larger vines. A good deal of careful observation is needed in pruning a vineyard of many different varieties, as it is necessary to trim some kinds much different from others. The same is true in pruning orchard and other fruit. The nature of the different varieties must be carefully studied before the proper treatment can be given.

DESTROY PRUNINGS.—Some growers will drag dead trees off into nearby hollows and fill ditches with prunings, and thus furnish ideal breeding places for the fruit tree bark-beetle, borers and other injurious insects. One can not be too prompt in burning the prunings, with one exception—that of nursery and young orchards, in which case I would advise that the prunings be left on the ground during winter to feed the rabbits, as I have noticed that a rabbit will never turn his head sideways to bite a tree so long as he can get plenty of his favorite food without so doing.

And right here let me again call attention to the importance of grubbing out all wild plum and wild crab trees that may be found growing about the premises. They serve as incubators for breeding curculio and codling moth. Also take out all other fruit trees which are not worth the expense of spraying and caring for in the best manner. Make it a point to have no tree on the place that cannot be made to produce good, profitable fruit. The man who destroys a tree bearing inferior fruit does as much or more toward bettering market conditions as the one who plants a good tree. I believe that if it were possible to have nothing but first class fruit go to market, such a thing as a glut or overproduction would be out of the question.

BLACKBERRY CUTTINGS.—Perhaps some of our readers would like to enlarge their blackberry patch, who are not familiar with the ease by which plants are grown from root cuttings, which may be prepared now, providing the ground is not too wet to dig the plants. Good healthy plants should be dug or plowed out, and the roots cut up into pieces about four inches long. These into bunches with wire or willow, pack in boxes of damp moss, sawdust or sand and store in a cool cellar. As soon as ground will work in Spring, make furrows about two inches deep, into which place the cuttings lengthwise, rather thickly and cover. Cultivate well and the next fall you will have as fine a lot of plants as could be desired. The sucker plants from along the sides of rows are often used for starting a new patch, but these are not so sure to grow and do well as are the root cutting plants.

EDWIN H. RIEHL.
North Alton, Ill., Dec. 23, 1902.

THE LATEST ON GINSENG.

A new publication of 144 pages by Orange Judd & Co. on ginseng culture comes to our desk. It appears to be about the latest thing in this line, and, as the author Mr. M. S. Kains states, aims to present the facts in the history and culture of this plant, rather than to focus upon the public personal views and opinions of the writer.

The subject of ginseng growing for profit is surrounded with a halo of eager anticipation of immense gains with an outer nimbus of busted hopes. As an Eldorado it is an alluring will-o'-the-wisp. As a straight business proposition, entered into with a full knowledge of both its horticultural requirements and its market status, it will doubtless repay the patience, the perseverance, the long years of waiting and the fostering care which it exacts.

For the would-be grower of ginseng who wishes to arrive safe in port after his

long voyage our advice is "don't get excited." Learn all there is to know about ginseng first. Freight your ship with ginseng facts, then embark. Don't set sail with nothing on board but high hopes and a bounding pulse, expecting to pick up a knowledge of the culture and sale of the little five-leaved Panax at the coasting station. If you do you will add one more wreck to the long list of casualties. And this advice will apply to any enterprise, but more particularly to those enticing lead-pencil crops that make Mulberry Sellers of the most staid and sedate of us.

BEN DAVIS DEFENDED.

Editor RURAL WORLD: I see in the columns of your paper that many men are jumping on an old friend of mine, some of them with both feet as if to knock the eternal life out of him. Some, not satisfied with that are calling him names—"abominable, no good for cider, vinegar, sauce, apple butter or to eat."

As to eating, he is so handsome from start to finish that many suppose he is prepared to be eaten at any and all times. Like the Keifer pear, he gets many "abominables" on that account.

Our people prefer Ben Davis for pies, sauce and apple butter to other varieties; their sauce and butter are on our table most of the time and are relished by callers, as well as the family. For cider and vinegar they are not quite so juicy as most other varieties and will not make quite as much, but it's good. Therein lies one of its best claims. When bruised the tendency is to dry in place of rotting and spoiling the whole apple; that fact, its size and handsome appearance make it one of the most profitable for the foreign trade.

The tree is symmetrical in growth and as hardy as an oak, a prolific bearer, commencing young and keeping it up in old age, as if determined (even at the expense of its own life) to supply the children of men with plenty of good and wholesome fruit.

Benjamin has been our right-hand bower for nearly forty years, helping to build our surroundings, lending a hand to create a surplus to keep the fierce wolf of want from our door in years to come.

One of the writers insinuates that the defenders of Ben Davis have young orchards of that kind. That may be a knock-down argument that I am not prepared to dispute, not being acquainted with all of his many friends. But if he says Benjamin isn't honest and true, I answer perhaps he never cultivated Ben Davis or his intimate acquaintance.

Tonti, Ill. ALLEN COPE.

ILLINOIS HORTICULTURAL SOCIETY

The Forty-seventh annual meeting of the Illinois State Horticultural Society, held at Champaign on December 17-18, will long be remembered for its interesting features by the large number of fruit growers who were present at the sessions. The reports of the officers show that the society is in a good, sound, healthy condition and that it is sailing down another year on the most favorable tide of prosperity.

The opening paper on "Cultivation and Care of the Orchard and the Implements and Machinery to Use," by W. S. Perrine of Centralia, was full of interest and led the way to a profitable discussion. As there were some complaints of bitter-rot last year in Southern Illinois, the paper on "Experiments of Spraying for Bitter Rot," by Dr. T. J. Burill of the State University, was most timely. The doctor's talk was unusually lengthy with this subject and he gave much time in answering some very pertinent questions.

J. L. Hartwell of Dixon showed the advantage of having a good farm garden for the family use, as well as supplying neighboring markets.

"Pruning" and "Winter Cover Crops" by Prof. Craig of the Cornell University, was full of interest and led the way to a profitable discussion. These lectures were illustrated and the pictures presented gave clear ideas of the results of careful observations on these subjects. Prof. Craig laid great stress on the necessity of having proper cover crops upon the orchard ground. The plant life is necessary for drawing mineral properties and nitrogen and other elements which enhance the fertility of the soil. Where orchards are not cultivated he recommended grass and clover, but under no circumstances should the grass be taken away after it was cut; it should be left for a mulch.

A. V. Schermerhorn of Kinnmundy told of "Practical Results of Spraying" and Dr. S. A. Forbes, state entomologist, had a most helpful paper on the "San Jose and Other Scale Insects." Dr. Forbes announced that he finally had reached a solution of the problem of disposing of the San Jose scale. He used a mixture during the past year which has been very successful in ridding orchards of this pest. The insecticide which has made this possible is a mixture of lime and sulphur, known as the California wash when combined with salt, and as the Oregon wash when combined with blue vitriol. These are the insecticides which have been used for a long time as the main reliance against the San Jose scale in the Pacific states, but their introduction in our part of the country was delayed by a report of experiments tried in the East and published by the United States Department of Agriculture in 1886, in which report these insecticides were said to be practical of no use in our climate.

H. L. Doan of Jacksonville read a paper on "The Peach: Cultivation and Pruning." Mr. Doan has a large peach orchard and all of his instructions came from observation and practical experience.

E. N. VanDeman, in the "Rural New Yorker," says: "The main principle in constructing an apple house, or a house to keep any other kind of fruit, is to make the walls and ceiling perfectly tight and with spaces of dead air between the enclosures. Still air is the poorest conductor of heat known. In a fruit house we want to keep the heat out, and at times to keep it in. An even and moderately low temperature is what is wanted."

There should be more than one dead-air space. I would put no sawdust in the walls but endeavor to make the linings as near airtight as possible. The best building paper should be used between thin boards, and if these are matched they will be the better for it. I would

Brides

Are always "beautiful" and always "happy" according to the society reporters, and in this case the report is mostly true. There may be unhappy brides in fiction, but there are few in real life. But how hard it is to look upon many of the wives we know and believe that they were once beautiful and happy. Pain, the result of womanly disease, has marred beauty and undermined happiness.

Beauty and happiness are both restored to the sufferers from womanly diseases by the use of Dr. Pierce's Favorite Prescription.

It cures the pain-producing peculiar to women, establishing regular, dry, working, tensioned dreams, healing inflammation and ulceration, and curing female weakness. It restores roundness to the sunken cheek and plumpness to the shrunken cheek.

* * * I have thought for some time I would write and tell you of the great improvement in my health since taking your "Favorite Prescription."

says Mrs. H. B. Jones, of Forest, N. C. and had despaired of ever having any health again. Could not sit up all day, and was so weak and emaciated one quarter of a mile from the first bottle was used. Was suffering with almost every pain that a woman is subject to during her monthly period, and other suppressed periods, and other symptoms of female disease. After taking six bottles of "Favorite Prescription," I feel like a new person.

Her ride home was a success, and took all kinds of exercise.

If you are led to the purchase of "Favorite Prescription" because of its remarkable cures of other women, do not accept a substitute which has none of these cures to its credit.

If you are looking for a perfect laxative try Dr. Pierce's Pleasant Pellets.

A Golden Rule of Agriculture:

Be good to your land and your crop will be good. Plenty of

FROM CALHOUN CO., ILL.

Editor RURAL WORLD: This is one of the best counties in the State of Illinois for apple growing. Such a reputation has our county obtained for the high quality of its apples that buyers come here from the East to buy our fruit before picking time begins. Calhoun county apples took the first premium at the World's Fair at Chicago. Some time I will send you some notes about our orchards and orchard production, and the varieties we cultivate, hoping it may interest some of your readers.

Calhoun Co., Ill. J. C. BELL.

THE GOOD OZARK BEN DAVIDS.

Editor RURAL WORLD:

I see much is now being said against good old Ben Davis. It may be that much is true for Eastern grown or Northern grown Ben Davis, but when you take a Southern grown or Missouri grown or Oak Park grown Ben Davis the accusation is not true. Well grown, picked at the proper time, and kept properly, the Missouri Ben Davis is a good apple, declares L. A. Goodman in "Practical Fruit Grower." It is the best apple to cook, to evaporate, to Jonathan, to ship, and, while not equal to Jonathan, by any means, it is really a good apple to eat if above conditions have been met. We find it giving us apples when all others fail, as it did last year; we find it in demand when we have no other friend to call upon. The great trouble has been that it is also grown where it is of very poor quality and should never have been planted, and its reputation has had to suffer in consequence.

The fact that Ben Davis is not wanted

as much as usual is no argument against good old Ben Davis. I have seen the time in Michigan when Baldwin were not wanted also, but no one would condemn it on that ground. I have seen the time here in Missouri when Winesap and Janet were not wanted by the buyers, and yet we all know them to be good apples. Too many jump at conclusions and say all Ben Davis are alike and then condemn all alike when it is only looked to the matter more closely that they would have varieties grown where they are adapted to the soil, location and climate and there would be no complaint to offer. We have only to cite the utter failure of some of the Eastern and Northern varieties grown here in Missouri. For instance there is no comparison in the quality of the "Snowtown" in the North and in Missouri, those of the North being far superior in quality to those grown in the South. I have tested over and over again the Ben Davis grown in Michigan and Wisconsin with those grown in Missouri and the difference was so perceptible that no one would have called them the same by taste alone, but the Missouri grown was far superior in quality to those grown in North that they could be called a good apple.

Buyers this year are shunning the Ben Davis because of the indiscriminate use of those grown in all localities last year. But even this was not an unmixed evil for there were some who were not there that year, because there were many others that could be had, but the evil effects came this year, because all kinds of Ben Davis were put upon the market. The Ben Davis is too profitable an apple, too prolific a bearer, too good to evaporate or make into apple butter or jelly, too large and handsome, too good a keeper, too good for cold storage, too good a keeper, too good to cook, and, where withheld, to good to eat, to be lightly thrown aside because a few buyers have blundered in their judgment of what, when and where to buy.

Kansas City, Mo. L. A. GOODMAN.

AN APPLE HOUSE.

H. E. VANDEMAN.

Professor F. H. King of the University of Wisconsin advises orchardists to plow their orchards and small fruit plantations late in fall, after the wood has ripened, as in so doing the spring moisture will be better conserved. He says:

"Late fall plowing and deep cultivation

of Atchison, Kan., was recently shipped by the Farmers' Seed Co. to Liverpool, Eng., says the Atchison "Globe." They were Jonathans, 169 barrels selected from 1,200 barrels, and every apple polished and wrapped in oiled tissue paper. Every apple was perfect and when the English people see that Kansas product there ought to be an exodus from that country to this vicinity. The company gets 6¢ a barrel for the apples on board at Atchison and could probably have gotten more for another car. Before the apples were picked an agent of the buyer looked at them and wanted three more cars, but Mr. Tomison said he would not pack another car in the same way for love or money.

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Live Stock

NATIONAL LIVE STOCK ASSOCIATION AT KANSAS CITY.

We print on the first page of this issue some pointed remarks by Secretary Wilson, made in the course of his address at the recent International Livestock Exposition at Chicago, in which he emphasizes the fact that the annual productions of the live stock industry in this country are valued at \$600,000,000.

If any other fact were necessary to illustrate the importance which this industry occupies in our country in addition to the above figures showing its magnitude, the character of the annual conventions of the National Live Stock Association is sufficient.

In point of attendance; in the character of the speakers and their addresses; in the features of entertainment for the benefit of delegates and guests; in the importance of the questions considered; in the amount of invested capital represented, this association is not surpassed by any similar organization in the country.

The sixth annual meeting will occur at Kansas City January 13-16, 1903. A brilliant program, with many able and noted speakers announced therefor, is promised. Such men as Ex-Gov. Francis of St. Louis; Hon. F. S. Peer of New York; Hon. A. E. Cummings, Governor of Iowa; Hon. Chas. H. Grosvenor, Ohio's famous debater in Congress; Hon. Jerry Simpson, now of New Mexico; Hon. Wm. M. Springer of Washington, D. C.; Prof. Charles F. Curtiss, man of Iowa's Agricultural College at Ames, and others of note will address the convention.

The delegates to this convention expect to have a good time, as well as to transact a lot of important business. A trip to the stockyards, a grand ball in the big convention hall, a reception given by the ladies of Kansas City, a gigantic smoker and luncheon and a trip to New Orleans have been arranged.

Kansas City will do her duty by the live stock men. A fund of \$30,000 has been subscribed to cover entertainment and other expenses, and it is safe to predict that the members of the National Live Stock Association and their friends and guests in attendance will have the time of their life.

VACCINATING CATTLE FOR TUBERCULOSIS.

The relation between the forms of tuberculosis in the human and in the lower animals has not yet been definitely established. Dr. Koch, the celebrated German investigator, still maintains, against much protest from other scientists, that the difference is so great that the disease is not communicable from cow to man. We do know, however, that the mortality both in the human family and in the different breeds of domestic cattle from this plague is very great. Some idea of the extent of this disease may be gained from a reflection on the fact that in Pennsylvania alone tuberculosis of cattle now causes losses amounting to a million dollars yearly, and the losses in the other Eastern states and in some Western states are in proportion.

Any study of this subject is bound to be of great value to cattlemen, and we have received a very interesting preliminary statement of some experiments upon the protection of cattle against tuberculosis by vaccination, carried on by Dr. Leonard Pearson, State Veterinarian of Pennsylvania.

These experiments, conducted at the Veterinary School of the University of Pennsylvania, with the support of the State Live Stock Sanitary Board and the assistance of Dr. S. H. Gilliland, are so convincing that there is little doubt of their efficacy. Whether they may be applied practically remains to be determined.

The work has been in progress more than two years, thus antedating all other work along this line, for the German investigation of Von Behring did not begin until July, 1901. No other investigations of this sort have been reported in any

DATE CLAIMS FOR LIVE STOCK SALES.

Claim dates for public sales will be published in this column free, when such sales are to be advertised in the RURAL WORLD. Otherwise they will be charged at regular rates:

January 9, 1903—Polled Durham cattle, Disp. sale of herd of late G. W. Johnson, at Lexington, Mo.

MRS. VIRGINIA P. JOHNSON, ...m., March 2, 1903—Combination sale of jacks, jennets, stallions and mules at Smithton, Mo. L. M. Monsees & Sons.

BERKSHIRE SWINE.

Jan. 26-27—Combination sale of Herefords, Kansas City, Mo., C. R. Thomas, Mr.

Feb. 2—Biltmore Farm's annual sale of Berkshire brood sows, Biltmore, N. C. POLAND CHINAS.

February 7—Combination Polled China sale, Kansas City, Mo., J. V. Cottap, Mr.

HEREFORDS.

January 24-25, 1903—T. F. B. Sotham, Herefords, Kansas City, Mo.

January 23-29—Combination sale of Herefords at Chicago.

January 15-17, 1903—C. W. Armou and Jas. A. Funkhouser, Herefords, Kansas

January 23-29—C. A. Jamison and others, Peoria, Ill., at Chicago.

February 10, 11, 12, 1903—C. A. Stannard and others, Herefords, at Oklahoma City, O. T.

February 10-12, 1903—C. A. Stannard and others, Herefords, Kansas City, Mo.

April 13-14—Combination sale of Herefords, Kansas City, Mo., C. R. Thomas, Mr.

May 6-7, 1903—Colin Cameron, Herefords, Kansas City, Mo.

ANGUS.

April 7-8, 1903—W. C. McGavock, Mgr., Aberdeen Angus, Kansas City, Mo.

SHORTHORNS.

February 12, 1903—Ernstenteit, Robertson & Wright, Vandals, Mo.

February 10-11—Col. G. M. Casey, Clinton, Mo., and T. J. Wornall & Son, Liberty, Mo., at Kansas City.

January 12, 1903—I. Novinger & Son, Kirksville, Mo.

February 17—D. K. Kellerman & Son, Mount City, Kan., at Kansas City.

February 18-9—I. M. Forbes & Son, at Chicago, Ill.

Make
Cows
Bread

Hoof Farm Breeding Powder does it. Write for circulars telling how and why. Best remedy for failure to breed, failure to clean, irregularities in coming in season.

Four times larger than any other hoof powder. Price 50c per lb. Postage paid.

HODD & CO.—Lowell, Mass.

other country than in the United States and Germany.

The process used was to inject into the vein of the animal to be protected a small quantity of a suspension of tubercle bacillus non virulent for cattle. This procedure, called vaccination, may be repeated several times with gradually ascending quantities. The immediate effect is to produce a passing fever following each injection, which does not annoy the animal enough to cause it to stop a single meal. The general health of the live stock industry in this country is not disturbed by the process of vaccination.

When the series of vaccinations is completed the animal had an astonishingly high degree of immunity to tuberculosis.

In the last experiments completed, four young cattle were used. Two of these were vaccinated last March. All four were inoculated in July by injecting into the wind-pipe a quantity of culture of virulent tubercle bacilli. A large quantity was introduced and each of the four animals received exactly the same treatment. These animals were killed in October. It was found that the cattle that had not been vaccinated were extensively tubercular, showing alterations of this disease in the wind-pipe, lungs, throat and intestinal glands; while the two vaccinated animals, inoculated at the same time from the same material and in the same way, were free from tubercular infection and were sound.

Dr. Pearson considers that this principle of immunization as applied to vaccination against tuberculosis of cattle is proven and it now remains only to work out the details of the method. This important work is being continued on a larger scale for the purpose of ascertaining the simplest and shortest practicable method of vaccination.

The delegates to this convention expect to have a good time, as well as to transact a lot of important business. A trip to the stockyards, a grand ball in the big convention hall, a reception given by the ladies of Kansas City, a gigantic smoker and luncheon and a trip to New Orleans have been arranged.

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forward. The largest and most consistent gains at the least cost are made after that method. There would be so little difference in the maintenance of an animal on cheap roughness through the winter where he would make consistent gains and keeping him on such a meager food that it would amount to nothing. Whereas, the animal well fed should come out in the spring weighing at least 300 pounds and come off the grass weighing 1,200 pounds. It is very doubtful, if he should be maintained as suggested by your correspondent, if he would weigh more than 1,000 pounds."

GRINDING FEED.

Prof. Henry of the University of Wisconsin gives the following advice regarding grinding feed for stock: "This subject is a difficult one to discuss owing to the great variety of conditions existing as to both grain and animals. Directions are here given which may serve to guide the feeder in his practice. For horses which are out of the stable during the day and worked hard, all grain, with the possible exception of oats, should be ground. For those at extremely hard work, all grain should be ground and mixed with chaffed hay. For idle horses oats or corn should not be ground, nor need the hay or straw be chaffed. A cow yielding a large flow of milk should be regarded as a hard working animal and her feed prepared accordingly. Fattening steers and pigs may be crowded more rapidly with meat than with whole grain; though there is more danger attendant upon its use. Sheep worth feeding can always grind their own grain. In general animals and those having ample time for mastication, rumination and digestion do not need their grain or roughage prepared as carefully as do those with only limited time for these essential operations. Experiments quite generally show increased gains from grinding grain, but in many cases they are not sufficient to pay the cost of grinding."

RAISING WINTER CALVES.

We have raised winter calves for several years past, and while by this means we are enabled to have a good output of fresh, golden butter just when it is at the top price, and a plentiful supply of fresh milk for feeding, we find labor profitably expended by the care of these calves, just at a season of the year when we can grow money so easily in no other way, writes G. W. Brown, in "Ohio Farmer."

While it is true that the dilution separator, followed closely by the improved deep-settling method, has practically revolutionized methods of feeding calves upon the farm, yet one must not contend that the feeding of winter calves must be compared with their spring rearing which with sweet, fresh milk and a grass lot, leaves little else to be desired. On the contrary, the calf that is to be wintered must have attentive care and clean, comfortable shelter, where it is not exposed to severe changes of weather or covered by drifting snows. Winter calves cannot be expected to thrive properly—have shelter, often in poor condition. The inquiry is as follows:

"The maximum weight of a steer in the fall is 700 pounds. When he is turned on grass in the spring his weight is 700 pounds. What should be his weight on grass alone (good grass) by the following fall? Suppose that this same steer is wintered so that he has neither gained nor lost, but weighs 700 pounds when turned on grass in the spring, what should be his fall weight?" Suppose also that this same steer is wintered so that his spring weight we will say is 700 pounds, what should be his fall weight?

Counting the cost of wintering in three different ways which offers the greatest profit?"

Prof. Soule's reply to these questions appears below:

"A steer on luxuriant blue grass pasture should gain from 200 to 400 pounds through the season's grazing, commencing about May and running through to October. The amount of gain put on by the steer will depend considerably on the quality of the animal and the disposition he makes of the food consumed. Where some animals would gain 400 pounds in a given time others will not gain more than 200.

"Ideas vary so widely as to what constitutes a good pasture that it is hard to say what results should be obtained unless one is familiar with local conditions. The subject of grazing and the amount of gain that can be placed on an animal through grass alone has not received as much attention as its importance merits, for grass undoubtedly makes the cheapest beef. At this station we are feeding sixteen cattle the present winter on cheap roughness and a light grain ration with the object of putting them on grass next spring and selling them in the late fall in the hope that they will then be in condition to make good export cattle. On the conclusion of this experiment we will be in a position to answer questions of this nature more intelligently.

"Your second proposition is even more difficult to answer than your first because of the question of individuality which enters into it. Some animals when kept on a maintenance ration alone through the winter period seem to become stunted, as it were, and it is sometimes after going on grass before they begin to make consistent gains; other animals will make good gains from the start. An animal that is growing through the winter time, as it certainly should, will of course have a larger frame on which to store up flesh and fat and hence make apparently larger gains than the animal which shows a considerable increase from winter feeding.

"A steer that went into the stable in the fall weighing 700 pounds and comes out in the spring weighing only 600 pounds has received very bad treatment. Being in a very poor and thin condition but with a good framework on which to build he will make rapid gains. In other words, he will make 100 to 150 pounds of 'fill-up' in short order. There is a marked difference, however, between 'fill-up' and gain. 'Fill-up' simply means bringing the animal into normal condition with regard to flesh and fat so that it can make consistent gains. It is not gain in the ordinary sense of the word. A man who owns cattle and has them to winter can not afford to treat them after this fashion. If he is fortunate enough to be able to purchase them in an almost emaciated condition from impudent people it may pay him to do so, but it is an unfortunate business in any respect and a serious drawback to the legitimate development of the cattle-feeding industry. Experiments surely demonstrate that the only wise and rational way to handle beef cattle is to keep them growing and thriving from the birth period

forward. The work is easily performed. By this method the calves are much more docile to feed, a much better shaped head is secured, which the animal carries oftentimes greatly to the benefit of the owner.

It is needless to expatiate upon the special care and feeding of these noble creatures, for the owner knows the benefit, and the buyer knows full well that the money he is expending in the purchase of these well-fed, rugged-boned, brawny creatures will return him good interest.

SALT FOR FARM STOCK.

The French government some years ago appointed a commission of scientific men to investigate the subject of the use of salt for cattle, and the conclusions they arrived at were most favorable to its use for farm animals. For milch cows the allowance for each animal daily is 2 ounces; fattening cattle and stall fed oxen 3½ ounces; for fattening pigs ½ pound; for sheep 1 ounce, and for horses, 1 ounce. For dairy use these allowances need not be exceeded, but from our experience of using salt for farm stock we much prefer laying down rock salt in convenient places to adding common salt to the food. When supplied in this way the animals can help themselves, and it may be taken as a certainty that they will take in more of it than may be required. The only objection to giving salt in measured quantities as given above, is that, through forgetfulness, the supply will not be given regularly, and, as pointed out already, "the composition of the blood is constant," and therefore the chemical supply should be regular. But without going into the question of the composition of the blood, the feeder of farm animals should always see the advantage of using salt as soon as possible, and when they are allowed its use regularly. Its action in producing a healthy, mellow skin can easily be noticed in the handling, while the coat of hair is thick and soft. These advantages are worth obtaining, even if you say nothing about improved condition.

STOCK NOTES.

Mr. John Morris, who has been breeding Short Horn cattle and Berkshire hogs for years near Chillicothe, Mo., is offering in this issue a splendid lot of bulls of serviceable age from Scotch-Bates and Scotch-topped Bates as well as other standard families. We do not think we ever saw better bulls for sale on this farm at one time before, and they are rightly priced. If you want Berkshire hogs for immediate use Mr. Morris will sell you a good one. In gifts he can furnish them either dead or live. Mr. Morris has never been in better shape to furnish the public with animals as good as can be found anywhere. Look up Mr. Morris' advertisement and if needing anything in his line you should see his stock before purchasing.

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When the scales and the price invariably verify all claims made for Dr. Hess' Stock Food as a conditioner and flesher of cattle. A tablespoonful to each animal twice a day in the regular grain feed, with a gradual increase to two spoonfuls of Dr. Hess' Stock Food produces a marvelous change in appearance, both as to great increase of flesh and a pleasing evidence of vigor. Dr. Hess' Stock Food is a perfect tonic that increases the appetite and invigorates the digestion—makes possible heavier feeding without waste.

Dr. Hess' Stock Food compels digestion of all food eaten—that means economical feeding and a wonderful addition of solid flesh and fat. It shortens the feeding period 30 to 60 days. It is a scientific compound for cattle, horses, sheep and hogs that prevents disease by keeping the animal in perfect physical condition.

When Shipping Day Comes

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Home Circle

Written for the RURAL WORLD.
SHUCKING CORN.

I've read of the jolly "huskin's"
And envy those folks their luck,
As I plod alone, o'er a frozen field,
And sit on a shock and "shuck."

I think of the fiddlers' playing
And the dance when the work was done,
The kisses won by the lucky red ear,
And the rest of the "huskin'" fun.

As the northwind whistles 'round me,
And overheat call the crows,
While I dance, like an Eastern dervish,
To keep the frost from my toes!

Instead of a source of laughter,
It causes a dismal groan
When a fellow knows the only red ears
In the corn-field are his own.

I wish all Missouri farmers
Would prove their wisdom and pluck
By bringing in vogue the husking-bee'
And forever ceasing to "shuck!"

ADELA S. CODY.

Written for the RURAL WORLD.
HE FEEDS THE WORLD.

In a recent number of the RURAL WORLD appeared a timely and well-written article entitled "Honor to Whom Honor is Due," written by that charming contributor, May Myrtle, relative to certain newspapers that endeavor to cast ridicule upon the farmer. Little that I may say can add materially to the subject, so thoroughly has the writer touched upon the question.

Unreflecting or unscrupulous journals have in the past devoted far too much attention to the undesirable features of agricultural affairs, but fortunately these misleading pictures of the farmer have failed to inflict absolute and irreparable injuries upon him; for fair-minded newspapers take no stock in caricaturing so honorable a calling as that of farming.

The call of the farmer in the United States has a far different meaning from what it does in the old world. He is not, as in England, a tenant with no interest in the soil, neither is he situated as in France on so small a tract of ground as to pay for enlightened cultivation, or to give its proprietor social or political importance. In America the farmer represents that class of our population that has successfully wrested from primitive nature the rich fields, and he is self-reliant, gifted with energy and power of execution, and withal is intelligent and well-informed. Hereditary classes being excluded from our shores, the farmer's sons hold and acquire enormous wealth. In politics the farmer-class hold enough votes to decide the elective vote of the great national campaigns. That the farmer is progressive and keeps in touch with the times is amply illustrated by the number of agricultural publications created for his benefit.

The farmer has his agricultural societies, which prove no small factor in promoting the science and practice of tilling the soil. The agricultural exhibits at the fairs are of a high and popular character.

The Department of Agriculture for the past several years has been under the care of a Secretary of Agriculture, a position first occupied by Hon. Norman J. Colman, the proprietor of COLMAN'S RURAL WORLD, in which capacity he nobly and efficiently represented the American farmer in the Cabinet.

In view of the fact that many papers still persist in caricaturing the farmer, May Myrtle's article was a wholesome castigation of that class of unprincipled journalists that have neither the sense nor decency to refrain from publishing so unjust and uncalled-for cartoons and threadbare jokes—jokes that were old when Cicero cultivated the soil on the banks of the Fibreno.

On the other hand, the farmer is rewarded by the better element of the newspapers that appreciate the dignity of his calling, and it is a pleasing sign of our times, that our leading newspapers daily devote considerable space in noting the condition of crops and advancement in agricultural affairs. From a metropolitan paper we find this paragraph, which will illustrate our state, showing how a fair-minded journalist (who doubtless came from the farm) views the situation:

"The real farmers of this nation are, outside of the large speculative industries, the most solidly prosperous and independent body of our citizens. They are established in that greatest of enterprises—the supply of the breadstuffs of humanity—and as other industries and occupations multiply, the importance and profitability of farming increases continually."

Determining to ascertain from a personal interview the sentiment of at least one Washington Journalist, we sent in our card to Mr. William A. Pratt, a writer of well-known ability, whose contributions to the Washington and New York papers have made him famous from the Capitol City to Florida, and was greeted with genuine courtesy. Upon stating our errand, Mr. Pratt, after paying a handsome compliment to the RURAL WORLD's wide circulation and vast influence, said in substance:

"I regard farming as the highest of all callings, because farmers produce something, and yet they are often ridiculed by those who produce nothing, and possess nothing. Of course, we hear a great deal about Cincinnati, who cultivated six acres, and took the field at the call of Rome. In fact, an aristocratic order has been named in his honor, and people join the same, appreciating the fact that the order was named for so far-famed an agriculturist and patriot, who, like our own Washington, left the peaceful pursuits of agricultural affairs, to serve his countrymen. Israel Putnam, we are told, left his oxen in the field to take up arms in the defense of his country, but history fails to do justice to that part of his career wherein he induced the field to yield the harvest."

\$100 REWARD \$100.

The readers of this paper will be pleased to learn that there is at least one dreaded disease that science has been able to cure in its stages, and that is Catarrh. It is a constitutional and positive cure known to the medical fraternity. Catarrh being a constitutional disease, requires constitutional treatment. Hon. E. Carter, of Toledo, O., externally, acting directly upon the blood and mucous surfaces of the system, thereby attacking the disease at the source, and giving the patient strength to build up the constitution and assisting nature in doing its work. The proprietors have made full and positive promises that they offer One Hundred Dollars for any case that it fails to cure. Send for a testimental Address, Dr. C. C. Collier & Co., Toledo, O.

Hall's Family Pillar is the best.

HOW MANY HANDS?

do you suppose dip
into that bulk coffee
before you buy it?

Lion Coffee

comes in sealed, air-tight packages; no chance for handling, or dirt or things to get in.

Clean, Fresh and Fragrant.

The Nazarene was a carpenter by trade, but his occupation is regarded with disdain by millions who worship Him by those who develop the gout on the charity of others, rather than a rugged competency in overalls and jumpers. But what more can be expected? The best man who ever lived was crucified! So the world will go right on caricaturing those who feed us and build our houses. When the rise in beef last summer forced up the price of eggs, it was claimed the poultry raiser took his advantage of the poor speculator and opulent consumer. As the necessities of life emerge from the farm, so do the critics return via the stock exchange to the authors of our physical existence. But the farmer has this advantage—he is at least independent of everything save the elements, and in a twelve-month could starve the cities into millions of shapeless skeletons were he not more charitable than his traducers."

In our opinion the "hayseed" joke has had its day, and we unto the newspaper that fails to appreciate this fact. The farmer, by his progressiveness, is a sufficient rebuke to the journalist or consumer who presumes to create amusement by misrepresenting his superiors.

S. F. GILLESPIE.
Washington, D. C.

Written for the RURAL WORLD.
SOME CHRISTMAS THOUGHTS.

Christmas is the greatest festival of the year. It is a time of joy, peace and good will to men. It is at Christmastide that family reunions occur and the merry prattle of innocent childhood blends sweetly with the graver accents of grandparents, whose joy it is to fondle them in their arms and ask them about Santa Claus. The feast day is especially the children's festival, and it is fitting that it should be so, for Christ was born on Christmas day in a stable in Bethlehem, a little more than nineteen hundred years ago.

How eagerly the children await Christmas morn to arise and search in their stockings hung up the previous evening, for the presents the dear Santa Claus has put in them during the night! And what a pleasure it is for the parents to anticipate their children's fancies and make clever guesses as to what the good old Santa is likely to bring.

Little boys and girls would you not like to hear how Santa Claus tricked me when I was a small boy? I shall tell you if I will remember some of my own early Christmases, and they are among the happiest recollections of my life. It was in Illinois. The snow lay deep and the week before Christmas was chill and foggy. I was kept indoors most of the time and told if I would be a good boy and not cry because I could not run out in the snow with my older brothers, Santa Claus would surely remember me. Christmas morn and fill my socks will all kinds of good things. If, however, I failed to be good, Santa Claus would not take the trouble and time to stop his big sleigh filled with gifts, unpick, set his ladder to the roof of the house, mount it, find the chimney and crawl down the stove pipe into the kitchen stove and out of the front door (which I left open Christmas eve) into the kitchen, where my socks would be hung.

I was extra good that week and hung up both socks early Christmas eve and father told me to place two chairs under the socks to make it convenient for Santa Claus to climb up to them. This I did and then retired early, thinking what a long time it would be until morning, but soon fell asleep. The next morning I was up earlier than usual and coming down stairs to the kitchen, found father lighting the fire. He smiled and said, "That's the way to rise early and be a little man." I replied: "Yes, father; did Santa Claus leave anything for me?" He pointed to the chairs and socks on the wall. I looked and saw full socks and a large package wrapped in brown paper on the chairs, and eagerly crossing the room, climbed the chairs and began pulling off the stuffed stocks—notthing but wood shavings. I reached deeper into the socks, and lo!—nothing but fine shavings. I paused, cast a look of despair at my father and the floor strewn with shavings. He seemed surprised and asked, "Is that all Santa Claus left you?" "Yes, father, I've afraid it is," said I, crying softly. "Try again. Probe it to the bottom," he suggested. I did so and drew out cakes, raisins, a toy lion on wheels, a mouth organ, a cuckoo that woud crow when hard pressed, a tin horn, a pictorial alphabet and "Jack and the Bean Stalk" in fancy colored covers. I then laughed through my tears and ran to father. He asked "What about the package on the chairs?" I said, "O yes, I forgot," and ran back and opened it, and lo! it was filled with several pounds of assorted and mixed candies. My joy was complete.

How pleasant it must be for the children of the wealthy on Christmas day, for they have comfortable homes, receive many gifts, have all their wants, real and imaginary, supplied on that day, and are carefully sheltered from the cold world and the rude storms of life. What a striking contrast to all this in the condition of the children of the poor, many of whom stand in need of food, clothing and shelter, receive no gifts on Christmas day and do not get as much as a good dinner. Alas! how sad is the lot of the homeless unremembered ones on that day! This state of affairs is wrong and could not exist in Christian lands if all Christians who are blessed with this world's goods would help their needy brethren. The wealthy Christian who eats, drinks and is merry on Christmas day and turns a deaf ear to the cries of the indigent and destitute is not practical. He is a Christian in name only and cannot enjoy true peace of soul.

It is now proposed to appropriate \$100

to entertain the King of Siam when he visits this country. This may be very well in its way. Honor to whom honor is due. But if we have so much surplus to thus entertain a foreign king, I think we might well employ some of it in providing good dinners for our neglected poor in our large cities on Christmas day.

Our Lord, in coming down from heaven to earth taught man by example the great lesson of charity and love for the poor. Had He so chosen He might have been born in the palace of the Caesars, surrounded by all the pomp and pageantry of a royal court, but no! He decreed to enter life in a poor stable in Bethlehem, in a state of unparalleled desolation, to show us the nothingness of worldly goods and teach us by example the heavenly virtues of love for the poor, patience in poverty and suffering and humility.

In conclusion, I would suggest to the wealthy fathers and mothers of our land to instill into the minds of their children the beautiful virtue of charity, particularly on Christmas day.

Pulaski Co., Mo. GEO. KAVANAGH.

Written for the RURAL WORLD.
DECEMBER.

Many weeks of pleasant weather during Autumn culminated in a Polar wave at the first of December, and for several days King Winter reigned supreme. An atmospheric moderation materialized an almost constant fall of rain and sleet, making locomotion a very slippery experience for man and beast for several days. The week previous to Christmas was one of rain, gloom and monotony.

We were continually confined to our den, suffering much from our disability, yet enjoying a perusal of the excellent literature that comes to us, much of which was provided by the bountiful kindness of our long-time friend, S. F. Gillespie, the Capital correspondent. RURAL WORLD, with its bright pages, replete with able editorials and contributions, was also a large factor in alleviating the weariness of the passing hours. The literary gems in every number are beyond computation in pleasure and profit.

A very peculiar episode occurred on one of those days of slippery ways. A young man from Altamont, who has been mining coal in the bank just north of The Cliff, was at work, as usual, when his horse slipped down the bank into a deep pit of sand and water, with only its head visible, and that fast disappearing. He obtained the assistance of two neighbors, young men and their team, and with much difficulty and great labor they succeeded in extricating it from its perilous position, without serious injury, but very greatly exhausted.

Advantage was taken of the few days' reign of King Winter by many in this region to promote button-bees, and that industry was largely in evidence, resulting in the annual "fresh sausage feast," so dear to the hearts of every farmer's family. The number of fat hogs was much greater than last year, and in far better condition. This betterment has accrued from the more abundant crops and superior quality of this year's products—one of the many blessings for which we are grateful.

Another interesting way of entertaining with soap-bubbles is to cut out a circular disk of common writing paper about the size of a half-dollar. Make two pin-holes in it, and hang it up by a thread. By keeping the disk moist the bubbles will "take hold" readily, and may be suspended in midair. After a little practice, you can hitch bubbles to each other, the first one being attached to the disk, and you will have the prettiest little chain of bubbles you ever clapped eyes upon.

TRY some of these tricks with bubbles, and see how you like them.

Mother will find "Mrs. Winslow's Soothing Syrup" the best remedy for Children's Troubles.

Written for the RURAL WORLD:
THE HOME MAKER.

In contemplating the many avenues to gain and honor that woman's feet have trod during the past twenty or thirty years one is apt to forget, or rather overlook the sphere in which she stands excelled and where she rules queen by divine right—the home. Men may build mansions and adorn them with the splendors of the Orient; art, science and industry may be combined to fill these structures with beauty, comfort and utility; debt servants may give perfect service and mortal's every sense charmed with what the hand of man has wrought, but without an woman's presence you dare not call that place home. Home need not be grand and stately; not richly adorned or filled with comfort and beauty, for all these things do not make home, but a woman does, and she can make a home out of a cave, as primitive woman did. Woman is essentially a home-maker, although of late she is rightly accused of being a club woman and a woman of business affairs.

I was extra good that week and hung up both socks early Christmas eve and father told me to place two chairs under the socks to make it convenient for Santa Claus to climb up to them. This I did and then retired early, thinking what a long time it would be until morning, but soon fell asleep. The next morning I was up earlier than usual and coming down stairs to the kitchen, found father lighting the fire. He smiled and said,

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The wealthy Christian who eats, drinks and is merry on Christmas day and turns a deaf ear to the cries of the indigent and destitute is not practical.

He is a Christian in name only and cannot enjoy true peace of soul.

HOLIDAY GOODIES.

FRENCH BONBONS.—Before attempting this variety of sweets, it is imperative that one master the art of making fondant, which is the basis of all French candies. With this knowledge as stock-in-trade, the possible changes and combinations are almost limitless; without it, nothing can be done.

There are two popular ways of making fondant; but as both produce practically the same results, which shall be used is a matter of choice.

RAW FONDANT.—To the white of one egg add an equal quantity of ice water (this may be exactly ascertained if the white of egg is first measured in a glass) and a teaspoonful of extract. Beat until the mixture is light, then add gradually, one pound or more confectioner's XXX sugar. Work with a spoon until smooth and firm.

COOKED FONDANT.—Place over the fire four cupsful of XXX sugar and one cupful of water; stir with a wooden spoon until the sugar is dissolved, no longer. Boil ten minutes or until it "threads." Remove saucepan to table and test fondant by rubbing a little of between the fingers. If it balls, turn into a bowl; when partly cooled, add flavoring, then beat with the spatula until stiff enough to knead with the hands like dough.

If woman is responsible for the home she should be equipped with every necessary weapon to defend it; show her where to find the light to sanctify it; let her have full power in its management and she will keep the warm radiance of home within its four walls. To the Twentieth Century woman belongs the task of re-establishing the domestic spirit and exalt the power of home and its sacred associations. In so doing she will find a sphere in the advancement of home life whose demands will satisfy even the restless energy of the so-called New Woman. MARIE MERRON.

THE WILD ROSE.

By Danske Dandridge.
I am the wild rose; lonely is my fate;
I am a queen, and yet I keep no state;
My beauty by no minstrel sung or told,
And all my riches is my heart of gold.

I am the wild rose; in the forest dim;
Musing I hear the sparrow's vesper hymn;

And silent shed upon the summer air.

The dewy incense of my evening prayer.

My stately sister of the garden close.

Superb in languid grace, the crowned rose,

Die greeting sends, and royal messengers,

By the light pinions of her courier be.

She has her court, her lords and ladies gay;

Would I might o'er one faithful heart hold sway!

Yet come what will, my life shall ne'er be sad,

For God has made me beautiful and glad.

LARKS WITH SOAP BUBBLES.

Soap bubble fun has no particular season. The beautiful fairy globes that float about so airy, changing from gold to purple and from primrose to crimson, are just as entertaining in the days of Jack Frost as they are in summer time, or vice versa. They are a never-ending delight, and the grown-up man or woman must indeed be old and embittered with the world not to enjoy a "bubble party."

WORLD CREAMS.—Divide the fondant into three or more parts. Color and flavor each differently. Mold into flat cakes, pile one upon the other, press firmly but carefully together, trim the edges neatly, then cut into squares, cubes or strips.

FRUIT CREAMS.—Add chopped fruit to the fondant and shape to suit the fancy. Or, form into a loaf and cut into small square slices. By substituting chopped fruits for

The Pig Pen

FEEDING YOUNG HOGS.

Editor RURAL WORLD: Baby hog meat, like baby beef, has its lovers, and their appetite must be catered to. Therefore, it is a part of the farmer's business to supply the demands, and in order to be successful he must know how to feed, what to feed and how much to give them at a time. I once thought that to feed hogs successfully it was absolutely necessary to confine them in close quarters, and long experience has demonstrated that for aged hogs it is best, as they lay on fat much faster, especially when confined to a corn diet. But not so with the pig; (by this I mean -hogs from four to six months old.) For these I have a grass plot of six acres to feed on and allow them free range for exercise, and grass to make bone and muscle. When possible burn cobs to make charcoal, as this furnishes them grit for their teeth and digestion, as it keeps them in good shape for the corn which is fed them. They get as much corn as they can eat clean without splitting the grains. Over-feeding is one of the greatest drawbacks in feeding pigs on corn, and in fact any other kind of dry grain. When badly off their feed, (I mean corn) take three bushels of wheat and put it in a barrel and scald with sixteen gallons of boiling water; cover the barrel tightly and let stand eighteen or twenty hours; then feed sparingly adding all the milk and slops you can. In a very short time they will be ready for more corn.

In winter it is very necessary to have good warm, dry and clean sleeping quarters. Don't let them sleep out on the frozen or muddy ground; don't feed in the mud; don't let them root, for pigs standing on their heads seldom amount to any good and also spoil the pasture. If infested with vermin, coal oil them

POLAND-CHINAS.

L. A. SPIES BREEDING CO.,
(Near St. Louis), St. Jacob, Ill.
Have 150-lb. Pigs by U. S. Chief Tecumseh & U. S. Prairie du Rocher, Chief Tecumseh & Chief Perfection 2d, for \$15. Satisfaction guaranteed. Lock Box 4.

Bred Poland China Gilts for Sale

At Walrus Valley Farm, part of them bred to Chief Perfection 2d. W. Male pigs that are being raised. Write for prices.

ERNEST W. WALLACE, Monett, Mo.

POLAND CHINAS.

March, April and May Pigs. All bear the wicks. Large Pigs. Herd sows—size, quality and finish. J. F. VESSINGER, Box 13, Melville, Ill.

POLAND-CHINAS. Gilt-edge pedigree, individual merit combined. R. L. ORGAN & SON, Garret, White Co., Ill.

BERKSHIRES.

CLOVERDALE FARM HERD
Of large English Berkshires Swine and B. P. R. Chickens. Geo. W. McIntosh, Monett, Mo.

DUROC-JERSEYS.

CALLOWAY COUNTY HERD
OF DUROC-JERSEY HOGS.
A choice lot of Boars ready for service and Gilts ready to breed. B. B. THURMUND & BRO., Auxvance, Mo.

ROSE HILL HERD OF DUROC JERSEYS.

Stock swine Gilts, bred for spring, fall and hogs ready for market. All come choice fall pigs ready to ship. All from large sows of the pure strain. I have two state fair prize boars in service. S. V. THORNTON, Blackwater, Mo.

THE ARTICHOKE MAN.

Editor RURAL WORLD: What has become of the Artichoke man? Is it possible they are not as good feed for hogs as they were once thought to be? Would be glad to hear from the readers of the RURAL WORLD on this subject. A few years ago there was a good deal said about Artichokes. I see nothing written about them now.

Dieholtz, Mo. ENQUIRER.

HINTS TO YOUNG BREEDERS.

BREEDING HIGH CLASS SWINE IS NOT SO EASY THAT ANYBODY CAN MAKE A SUCCESS OF IT. A man to make a success of this like mercantile or manufacturing business, must have a peculiar fitness for it. He must have adaptability, push, energy and persistence. Many have started in and dropped by the wayside, lost money and made experience. They expected it easy, expected to make big money in short time, had no knowledge of the requirement of the successful breeder, and consequently failed to make a success of it, says "American Swineherd."

In the first place, a man should be suitably situated on a farm. A first national bank is not required, but rather a dry healthy location for your feed lots, and if farm is not over three to five miles from railway station, it will be much more convenient. Now make up your mind as to whether you want to go in the business to win, study it carefully. If you do not like a hog, enjoy being out among them, watching them eat and grow, rubbing them, etc., do not go into the business, for you will be afraid you will get your hands or feet mucky.

If you make up your mind you want to go into the business to stay, make up your mind as to the type or style hog you wish to breed and buy your brood sows and boar as near that type as you can afford.

Pick out individuals with no very weak point, for you had better have a sow that has an ear not quite perfect, nose not just as short as you wish, back not quite as well arched as your ideal calls for, rather than, that one that has just the ears and nose, but bad in the back. Two or three small faults are preferable to one very serious one. First find your individual then the pedigree, and last and least the breeder that signs the pedigree, for you want to remember you are not buying the breeder but his hogs, and while there is some importance attached to the breeder it is a secondary consideration. There has been too much buying breeders in the last few years.

If you have your herd bought, handle it carefully until farrowing time, not getting your sows too fat. When the pigs begin to come stay by your sows, even if you lose some sleep, and with good care you will be able to save a reasonable number of pigs. Have good dry houses for them; there are different ways of making them; feed carefully for the first three or four weeks.

Do not try to crowd your pigs too fast while they are sucking. They will not be so large perhaps as if crowded, but when weaned will be able to stand pushing, and when six months old will be the

best for not being crowded when sucking.

Now you are ready for selling, but where is the buyer? You must not think you will be able to sell them as fast as you can produce them. Have patience, pick out one or two good journals to advertise in and be careful not to overdo the advertising, as it can be overdone.

You will get some inquiries, and now be careful, for here is where many young and some old breeders fall down and fall hard. Describe your pig in a clear way, as near correct as you can. Do not lead the buyer to think you are giving him better than ever he saw before, for he may have seen the best; you don't know. Do not sell him a 200-pound pig and then ship him a 100-pound one. In other words, be honest with your buyer, and if you succeed in selling him he will be pleased and you have a chance to sell him again. Use the knife on your poor stut, for a pedigree without a pig is no good. Do not expect that you will get rich in one or two years, for you will not, but if you give it thought and care, mixed with plenty of pluck and perseverance, you will be able to make a good cent on the investment.

You can start with a small investment or if you wish to buy \$500 worth of hogs, I presume there are some still left for sale, but you can take from \$300 to \$500 and start with a nice representative herd of from six to eight sows and herd boar.

This will increase fast enough to satisfy you, and you will find it will furnish your work enough to keep you out of serious mischief.

FEEDING THE PIG.

It isn't much wonder that thousands of valuable hogs die from cholera in this country every year. No other stock is fed in so slovenly and filthy a manner.

The pig is by nature one of the cleanest of animals, if given half a chance; but think a moment of the way they are abused on thousands of farms, writes S. A. Dyke in "Farmers' Guide." The practice of allowing hogs to follow cattle is a bad one, as they must swallow much of the poisonous excrement in obtaining the half digested food. A miserable process, indeed, of making pork to be taken into the human stomach. Better by far to grind the corn for the cattle than to insult and injure your hogs by making scavengers of them.

The pig pen is but little better. Often confined in a rail pen, mud knee deep, never cleaned out until the manure is scattered over a few adjoining rods of land after the much suffering swine are dead and gone. We have seen things in this line that were too horrible to describe.

"How shall we feed our pigs?" Well, in the first place, provide the right kind of quarters. In the spring give them a good pasture of clover and blue grass.

Give them good, clean slop and milk. Wheat middlings should go in the slop. As they grow older, begin to feed shell corn on a clean floor, a platform in the lot will be best where rain and wind will cleanse and purify it; such conditions will make healthy hogs and wholesome meat. Then when put up for fattening, let them have a small yard where they can get to the ground. The pen will be much cleaner on account of it, much to the pig's comfort.

LARGE PROFITS IN SWINE.

While a good many farmers may be slow in raising hogs to convert corn into profitable pork when this grain is as high as at present, it is nevertheless true that more money can be made in the aggregate in feeding the corn to hogs than to raise swine in season and out of season, sticking to the business year after year. Of course a shelter in winter is of great importance, for, in this way alone can the best results be obtained, but the cheapest possible pens covered with grass or straw will answer all purposes. The Duroc-Jersey has sufficient bone and frame to make as large hogs as any breed, and six and seven hundred pound porkers are not rare. Putting all things together, as uniformity of size, shape and color, with their other well known qualities, the farmer who disposed of his stock hogs last year on account of the drought would do well to take a fresh start with this breed, and those who have not met with good success with other breeds would do well to make at least a trial of the Duroc-Jerseys and they will soon have no other.

Hogs are easily raised, and the present high price of beef will insure, for a considerable time, a remunerative price for hogs; and, for quick returns, there are but few other investments that will rival the hogs, and of these the Duroc-Jerseys are prime favorites. S. P. DORMAN, Clinton, Mo.

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The Markets

WHEAT—No. 2 red sold at \$6 E. side; No. 3 red at \$5 1/2 W. and 75¢ E. side; No. 4 at 65¢ to 75¢; rejected at \$6 to 65¢; No. 2 hard winter quotable at 75¢ to 75%; No. 3 hard sold at 65¢ to 70¢; No. 4 quotable at 65¢ to 65¢; rejected at \$6; No. 2 white spring at 75¢; No. 3 do very quiet.

ADDITIONAL MARKETS ON FOURTH PAGE.

ILLINOIS FARMERS' INSTITUTES AND SILAGE.

Editor RURAL WORLD: We attended recently the Institutes of Mercer, Warren and Henderson counties. At Alton the attendance was reduced materially by reason of the sensational murder trial going on at the court house. The papers read and the discussions had during the two days were of a high order, and the few persons present were greatly interested. In N. C. Cobb, popularly known by RURAL WORLD readers as "Buff Jersey," was in attendance throughout the series, being Institute Director of the Fourteenth Congressional District. He and F. M. Parsons of Burlington, Iowa, discussed the silo and gave out some valuable information. Without endeavoring to give in detail a report of their speeches, I think it would be of interest to note something of the yield of the ensilage crops put into their silos this year and the feeding value.

Parsons: Thirty acres ensilage corn yielded 12 tons, 300 tons; 20 acres ensilage sorghum yielded 15 tons, 300 tons; 600 tons of corn for parcels and postal savings banks; against one cent letter postage until the rural delivery is fully established; for the people to initiate and ratify important legislation; against ship subsidy; to manage state institutions under civil service rules; for highway control of motor vehicles; people to elect U. S. Senators; for government control of monopolistic corporations; for reciprocal treaties to widen foreign grain markets; to enlarge powers of the Inter State Commerce Commission. A legislative committee was appointed to go to Springfield in behalf of farmers' interests. Thirty-six counties of the state were assigned to State Master Oliver Wilson, State Lecturer E. H. Clark and G. R. Tate, as a special field in which they are to hold three public grange meetings in each county and organize the farmers. The officers reported showed faithful service. The several committees reported on important home fairs and organization matters were strong and practical, and the discussions were full and timely. The next annual session will probably be held at Springfield.

THOS. KEADY, Sec'y.

COTTON—Spot market firm, 1-1/2 higher; sales to-day 75 bales. Ordinary 6 1/2¢; good ordinary 7 1/2¢; low middling 7¢; middling 8¢; good middling 8¢; middling fair 9¢; Tinges and stains 9 1/2¢ off white.

WOOL—Missouri and Illinois—Medium combing and cloth mxd. 20¢/30¢; clothing 18¢/20%; low and broad 17 1/2¢; burry and clear mixed 17 1/2¢; burry 15 1/2¢; hard burry 15 1/2¢; light fine 18 1/2¢; heavy fine 18 1/2¢; light lamb 17 1/2¢; heavy and coarse lamb 16 1/2¢.

BUTTER—Firm. Quotations: Creamery—Extra 3¢c; firsts 2 1/2¢c; seconds 2 1/2¢c. Dairy—Extra 2 1/2¢c; firsts 18 1/2¢c; cream 4 1/2¢c. Lard-packed—Extra 18 1/2¢c; firsts 18 1/2¢c. Country—Packing stock 13 1/2¢c. Renovated—Good 20¢/22¢.

EGGS—Current receipts 2¢/2 1/2¢c.

CHEESE—Northern on orders: Twins 12¢; single 13 1/2¢; singles 13 1/2¢; Y. A. 13 1/2¢; longhorns 14¢; Limburger 11 1/2¢; Swiss 14 1/2¢; brick 12 1/2¢/13¢.

LIVE POULTRY—Choice turkeys at 11 1/2¢; mixed chickens, hens and young 8 1/2¢. Old roosters 4¢; Duck 12¢. Geese 9¢. Live pigeons and squabs, per dozen, 75¢.

BEESWAX—Quiet at 25¢ per lb. for prime.

HONEY—Quote: Comb-Dark at 10¢/11¢; choice at 12 1/2¢; choice Colorado White at 14 1/2¢, or at 13 1/2¢/15¢ per case. Extracted and strained—Southern in bbls. at 5¢/6¢c; in cans 6 1/2¢/7¢c; California in cans at 7 1/2¢c.

BEANS AND PEAS—Quote from store; White beans at \$2.35¢/2.40¢ for hand-picked pea and \$2.25¢/2.30¢ for machine picked pea and \$2.25¢/2.30¢ for machine picked. Dried green peas—Scotch at 17 1/2¢; split peas at 22 1/2¢ per bu. and 27 per bbl.; blackeye at 12¢; California pink at 3¢ per lb.; New York kidney 6¢; Lima beans 5¢; lentils 4 1/2¢; choice hand-picked pea offered on E. trk. at \$2.25.

BROOM CORN—Nominally firm; quote, per ton: Fair 50¢/60¢; common 40¢/50¢; choice at 60¢/70¢.

POP CORN—Selling on cob at 11 to 15¢ per 100 lbs. for pearl; mixed at 60¢/75¢.

PECANS—Average receipts about 50¢/6¢c.

PEANUTS—We quote; Farmers' stock—Red at 14 1/2¢ per lb; white 14 1/2¢/15¢.

WALNUTS—Selling at 50¢ per bu; California at 10¢/12¢ for hardshell and 10¢/12¢ for softshell.

CIDER—Sold at \$3.00/\$4.00 a bbl.

HICKORY NUTS—We quote per bu. at 11¢ for large and \$1.60/\$1.75 for shellback.

SORG. CANE SEED—Selling at 100 lbs.

SORGHUM—Prime at 22¢/24¢ per gal; inferior and old less.

DRIED FRUIT—Evaporated rings at 4¢ to 6¢; sun-dried quarters 4¢ to 6¢; sun-dried pieces 20¢/25¢.

MAPLE SUGAR AND SYRUP—New sugar 8¢/12¢; old 10¢/12¢; Canadian at 13¢; maple syrup at 60¢/80¢ per gal.

GRASS SEED—Timothy at \$2.50/\$3.40; clover at \$7.50/\$10; new red top \$1.50/\$1.60.

APPLES—Per lb. from cold storage; Davis, fair at \$1.50/\$1.60; choice at 11.75¢/12¢; fancy up to \$2.15¢/\$2.25; wineapple from \$2.25¢/2.75¢; wulfen twigs at \$2.50¢/3¢.

RAMON SEED—Timothy at \$2.50/\$3.40; clover at \$7.50/\$10; new red top \$1.50/\$1.60.

APPLIES—Per lb. from cold storage; Davis, fair at \$1.50/\$1.60; choice at 11.75¢/12¢; fancy up to \$2.15¢/\$2.25; wineapple from \$2.25¢/2.75¢; wulfen twigs at \$2.50¢/3¢.

POTATOES—Northern on trk. at 44¢/48¢ for common to fair to 50¢/52¢ for choice stock. Nebraska, Iowa, early Ohio 42¢/45¢.

SWEET POTATOES—Bermuda at 60¢/75¢; Nansemond at 75¢/90¢ for yellow to 80¢/90¢ for red; Queen at 55¢/60¢ per bu. box.

CANTON, Mo. G. W. WATERS.

THE CHEMISTRY OF THE FARM.

A copy of the fifteenth edition of the above is received from the press of Vinton & Co., Ltd., New Bridge St., London, E. C. It is written by R. Warington, M. A., F. R. S., an eminent authority and formerly Professor of Rural Economy in Oxford University.

As stated, the work has been written primarily for the use of students and teachers in agricultural schools and colleges. It aims at presenting a clear but brief account of the general principles and more important facts of agricultural chemistry. It describes the chemistry of plant growth; the character and properties of soil; the nature and use of manures; the composition and characteristics of farm crops; the science of rotations; the composition of animal products; the composition, digestibility, and special characteristics of foods; the food requirements of the various animals on the farm; the relations of food to manure; and, lastly, the chemistry of dairy work.

No attempt is made to teach either general chemistry or the details of agricultural work; some knowledge, both of chemistry and of the operations of practical agriculture, is assumed to be possessed by the reader.

The same publishing house have also favored this office with a copy of their "Live Stock Journal Almanac" for 1903, which is of more historic than practical value to American readers.

England is distant from this country quite a bit. American farmers know little of English methods of agriculture, but a perusal of this almanac shows the same

two loads came in to dealers. This was the sum total of arrivals. The number of buyers on the market was very small, and the trade had no active characteristics whatever. This kept the dealers from being very solicitous about the commission offerings, and during the forenoon little was done in a selling way. At this stage the outlook for the week is very quiet.

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The papers read and the discussions had during the two days were of a high order, and the few persons present were greatly interested.

In the afternoon the State Grange, at Urbana, Ill of the 100 granges in the state were represented by 60 voting delegates; and over 100 members of the order were present. President Draper welcomed the grange to the University. Prof. Davenport of the Agricultural College delivered an address, and conducted the members over the buildings, while Miss Beatty of the Household Domestic Science Department, lectured to the ladies; and the students showed us many courtesies. Financial reports showed the State Grange income to be \$1,037; expenses, \$1,024; on hand, \$2,844. Membership gains, 456; meetings held, 101; cooperative business reported over \$10,000.

Resolutions were adopted in favor of central township schools; protection of quails for five years; to give No. 2 corn former grade in grain inspection system; for parcels post and postal savings banks; against one cent letter postage until the rural delivery is fully established; for the people to initiate and ratify important legislation; against ship subsidy; to manage state institutions under civil service rules; for highway control of motor vehicles; people to elect U. S. Senators; for government control of monopolistic corporations; for reciprocal treaties to widen foreign grain markets; to enlarge powers of the Inter State Commerce Commission. A legislative committee was appointed to go to Springfield in behalf of farmers' interests. Thirty-six counties of the state were assigned to State Master Oliver Wilson, State Lecturer E. H. Clark and G. R. Tate, as a special field in which they are to hold three public grange meetings in each county and organize the farmers.

The officers reported showed faithful service. The several committees reported on important home fairs and organization matters were strong and practical, and the discussions were full and timely. The next annual session will probably be held at Springfield.

THOS. KEADY, Sec'y.

PRESERVING FENCE POSTS.

A line of work that would certainly bear more investigating in our experimental stations is that of preserving fence posts. The experience of farmers in this particular is very contradictory. One will say that tar is just the thing, and another will tell you that tanned posts rot sooner than any others. The same applies to coal tar, petroleum and other post preventatives.

Some years ago at the Wisconsin station coal tar and crude petroleum were experimented with, says the Wisconsin "Agriculturist." Cedar posts were set around a field, one dipped in coal tar, one in crude petroleum and the other untreated, alternating in this way all the way around. At the end of seven years the posts dipped in coal tar were well preserved, but those treated with crude petroleum were no better than those untreated, both showing the signs of age expected in that time.

Now an experiment is being tried with a patent preparation which penetrates the wood, and the posts are of soft wood.

In work of this kind field conditions would undoubtedly be those to put the posts in having a fence to support, and charred posts, pine tared, coal tared and posts treated with all other preparations claimed to have preserving power against the untouched posts.

MAMMOTH, OR COMMON RED CLOVER.

Farmers will be writing us during the early winter months, as they always do, as to which is better mammoth clover or the common red. It depends entirely on the object you have in view in growing clover. If you have good, rich land that will feed fifty bushels of corn over per acre and are growing clover for fertility, for hay, or seed, and especially if hay be the main object, we would use the common red, the main reason being the superior quality of hay it furnishes, says "Wallace's Farmer."

If we were growing it on land foul with cocklebur, we would grow the common red. You will have to mow it off anyhow if you want to get rid of the burs, and if you have a good clover seed, such as this one, you have a chance of getting a fairly good crop of hay and at the same time getting rid of the burs by cutting them before the seed is sufficiently developed to germinate. If you grow mammoth under these circumstances, the hay will not be worth raking up, not because there is not enough of it, but because it will lack quality and in a good year the common red sown in the spring comes into bloom in September and the mammoth does not. By observing this is one of the best ways to distinguish these different varieties.

If however you are growing clover mainly for fertility and for seed and a hay crop is not a special object, then we would grow the mammoth for two reasons: First, because there is more of it; second, because a seed crop is much more certain with the mammoth than it is with the common red. This, however, is not always the case, but it is always the case when the clover seed midge abounds.

The clover seed midge has timed itself to the two periods of bloom of the common red. That is, the fly which deposits the eggs is on hand in June and again in September. The mammoth clover blooms in July. The period of the midge fly is then past, and by the time the second crop comes the harvest has been gathered.

Again, if the farmer has thin land and hay is a special object, we would prefer even for this the mammoth to the common red for two reasons. On that kind of land it will not grow so rank, of course, and will make very good hay, and mainly because it is at its best at the same time with timothy which the common red is not. In growing timothy and common red for hay, you must cut when one or the other is at its best. If you wait until the timothy is fit to cut, the common red is past its prime. If you cut when the clover is at its best, the timothy will be inferior in quality because not fully developed. We do not know of any better hay than mammoth clover and timothy, half and half, when grown on thin rolling land.

In point of fertility there is not very

much difference. While the mammoth grows a great deal more in bulk the first of the year, it does not throw up the aftermath after cutting than the common red does. In fact, the aftermath in mammoth clover the second year is of very little value for the reason that most of the plants have fulfilled their mission and perished, mammoth clover being more strictly a biennial than the common red.

COST OF RAISING CORN.

Secretary F. D. Coburn of Kansas, with a view to determining the cost of raising corn in that state in ordinary crop year, took the opinion in detail of sixty-eight veteran growers in forty-five counties of the state, giving from their experience "on such a basis as others can safely accept" each principal item of cost in growing and cribbing an acre of corn, estimating the yield at 40 bushels. About two-thirds of those reporting prefer planting with listers, and the others use the better known check-row method, after the land has been plowed and harrowed.

Statements of cost where the land plowed, well harrowed and planted with the ordinary check-row machine, summarized for each item as below:

Seed \$0.07

Plowing 1.05

Harrowing34

Planting35

Cultivating58

Husking and putting in crib 1.18

Wear and tear and interest on cost of tools 2.35

Rent of land (or interest on its value) 2.35

Total cost46

Conge per bushel16

Commenting on these figures, Secretary Coburn says: "In none of these calculations has there been made any allowance for the value of the corn stalks, which, ordinarily, under the crude management, should offset the cost of harvesting the grain, and under proper conditions should have a forage value much in excess of such cost. Taking these into every estimate as should rightly be done, the showing cost per bushel would be very sensibly diminished. In the results of this investigation it will likewise be noted that the rental of these Kansas corn lands, or the interest figured by their owners on the investment represented, averages more than 8% per cent or a net return higher than the capitalist, general banker or money lender dreams of realizing.

While it is true that many of our soils may be able to produce a hundred or more crops even if the grain is annually marketed at the elevator, yet this can not be done without the crop annually growing less. Experiments in wheat growing on the Rothamstead estate show that during fifty years the average annual yield has been cut down from between thirty and forty bushels per acre to nine bushels per acre. In this case no fertilizer has been added to the land during the entire time. Analysis of the soil indicates that there is still a fair supply of ash constituents, the unproductiveness of the soil being due to the fact that the prairie cropping has reduced the supply of vegetable matter to such an extent that the ash constituents are not liberated.

It is true that the decay of vegetable matter produces acids that liberate the ash constituents, and unless these acids are present there can be little or no liberation.

Average prairie soils contain a large supply of vegetable matter, as well as ash constituents, and because of the presence of both the soils are productive. So long as the vegetable matter supply is kept in balance with the ash supply just as long will the soils remain productive, while the exhaustion of the humus supply has the effect of decreasing the productivity of the soil is to feed the crops on the farm and return the manure to the land. The legumes may be used in supplying the element nitrogen, but roughage must be returned to the land in order to keep up the supply of humus. It should be remembered that straw and corn stalks contain considerable mineral matter, so that when these are returned to the land the same more humus is added to the soil than is removed by the ash constituents.

It is the ash which is the chief factor in the production of the humus.

It is the decomposition of the humus which forms the basis of the soil.

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